

WHAT IS CLAIMED IS:

1 1. A computer system for performing expedited startup operations, comprising:
2 a processor;
3 a system startup memory coupled to the processor;
4 a basic input/output system (BIOS) memory coupled to the processor, the BIOS memory
5 comprising instructions for initiating startup operations; and
6 a hard disk drive storage device, comprising
7 a storage media comprising at least one drive platter for storing a program module
8 that is loaded in the system startup memory during startup operations,
9 a non-volatile memory for storing a copy of the program module stored on the
10 storage media, and
11 a microcontroller for controlling access to the storage media and the non-volatile
12 memory, said microcontroller configured to retrieve the program module from the non-
13 volatile memory in response to a read request from the processor if the storage media is
14 not operational when the read request is received by the hard disk drive storage device.

1 2. The computer system of claim 1, wherein the non-volatile memory comprises a
2 cache memory.

1 3. The computer system of claim 2, where the cache memory comprises a battery-
2 backed CMOS memory.

1 4. The computer system of claim 1, where the program module comprises an initial
2 program load module that is loaded into the system startup memory and executed by the
3 processor to load an operating system for the computer system.

1 5. The computer system of claim 4, where the initial program load module
2 comprises a master boot record, a boot load program and a kernel program.

1 6. The computer system of claim 1, where the hard disk drive storage device
2 comprises a RAID array.

1 7. The computer system of claim 2, where the hard disk drive storage device further
2 comprises a microcontroller memory for storing a module that maintains coherency between the
3 storage media and the non-volatile cache memory.

1 8. The computer system of claim 7, further comprising a threshold table stored in the
2 hard disk drive storage device, said threshold table containing, for at least one sector of the
3 storage media, a minimum threshold count value, wherein the module clears a sector in the non-
4 volatile cache memory only if a cache miss count meets or exceeds the minimum threshold count
5 value for that sector.

1 9. A method for retrieving a program module from a first storage device during
2 startup operations, comprising:
3 executing BIOS instructions for initiating startup operations;
4 initiating operating system load operations by requesting a program module for a first
5 storage device comprised of a first storage media and a non-volatile storage media; and
6 retrieving said program module from the non-volatile storage media if the first storage
7 media is not operational to provide said program module.

1 10. The method of claim 9, wherein the non-volatile storage media comprises a cache
2 memory.

1 11. The method of claim 10, where the cache memory comprises a battery-backed
2 CMOS memory.

1 12. The method of claim 9, where the program module comprises an initial program
2 load module that is loaded into a system startup memory and executed by a processor to load an
3 operating system for a computer system.

1 13. The method of claim 12, where the initial program load module comprises a
2 master boot record, a boot load program and a kernel program.

1 14. The method of claim 9, further comprising maintaining cache coherency between
2 at least a part of the first storage media and the non-volatile storage media.

1 15. The method of claim 9, further comprising executing the program module to load
2 an operating system into a system memory.

1 16. In an information handling system, a disk drive storage device, comprising:
2 at least one drive platter for storing a program module,
3 a non-volatile memory for storing a copy of the program module, and
4 a microcontroller for controlling access to the drive platter and the non-volatile memory,
5 said microcontroller configured to retrieve the program module from the non-volatile memory in
6 response to a read request from a processor if the drive platter is not operational when the read
7 request is received by the disk drive storage device.

1 17. The disk drive storage device of claim 16, wherein the non-volatile memory
2 comprises a cache memory.

1 18. The disk drive storage device of claim 16, where the cache memory comprises a
2 battery-backed CMOS memory.

1 19. The disk drive storage device of claim 16, where the program module comprises a
2 master boot record that is loaded into a system startup memory and executed by a processor to
3 load an operating system.

1 20. The disk drive storage device of claim 16, where the microcontroller executes a
2 coherence program to maintain coherency between the drive platter and the non-volatile
3 memory.